

**UNITED STATES DEPARTMENT OF COMMERCE****United States Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

HBA

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/679,480 10/05/00 SUZUKI

Y 197484US0

EXAMINER

022850 IM52/0626
OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT
FOURTH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON VA 22202

DATE, I	
ART UNIT	PAPER NUMBER

1753
DATE MAILED:

06/26/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/679,480

Applicant(s)

SUZUKI et al.

Examiner

J. DOTE

Group Art Unit

1753

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 2/15/01

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-37 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-37 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☒ All ☐ Some* ☐ None of the:

☒ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

1. The US Patent Nos. 5,562,016, 5,677,096, 5,578,405, 5,871,876, 6,026,262, listed on the "list of related cases" filed in the Information Disclosure Statement on Oct. 5, 2000, Paper No. 5, have been crossed out because they are listed on the form PTO-1449 filed on Oct. 5, 2000, also attached to Paper No. 5.

The US applications 08/336,047 and 08/862,260 (erroneously listed as 09/862,260 filed May 23, 1997) have not been considered and have been crossed out from the "list of related cases" because they are abandoned files.

The US application 09/383,191 has been crossed out because the application has been issued as US Patent No. 6,136,483, which has been considered and is listed on the attached form PTO-892.

The copending US application 08/550,808 has been considered.

2. The Japanese Patent Office (JPO) abstracts listed on the form PTO-1449 filed Oct. 5, 2000, attached to Paper No. 5, have been crossed out, because they are not foreign patent documents. The JPO abstracts have been considered and have been properly listed by the examiner on the form PTO-1449.

Applicants are reminded that it is their responsibility to properly list the documents to be considered.

3. The disclosure is objected to because of the following informalities:

(1) The specification at page 34, line 21, discloses that Fig. 4 is "a schematic view illustrating a main part of an embodiment of the image forming apparatus." However, Fig. 4 is also described as "a schematic view illustrating a cross section of . . . the photoreceptor of the present invention." See the specification, page 22, lines 20-23.

(2) The use of trademarks, e.g., Bekkolite M6401-50S [sic: BEKKOLITE M6401-50S], at page 36, line 11, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive - applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by US 5,578,405 (Ikegami).

Ikegami discloses an electrophotographic photoreceptor comprising an electroconductive substrate and a photosensitive layer. The photosensitive layer comprises a triazo pigment that has a sensitivity to light with a wavelength of 700 nm or more, and an asymmetric bisazo pigment that has a sensitivity to the visible region. Col. 6, lines 20-25. The photosensitive layer further comprises a sulfur-containing antioxidant. See Examples V-24, and V-33 in Table 58 at col. 343, and sulfur-containing antioxidants (I)-13 at col. 163 and (IX)-1 at col. 295.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by US 5,595,845 (Maeda), as evidenced by Ikegami.

Maeda discloses an electrophotographic photoreceptor comprising an electroconductive substrate, a charge generation layer, and a charge transport layer. The charge generation layer comprises an oxytitanium phthalocyanine, a bisazo pigment, and a sulfur-containing hindered phenol compound. Example 5 at cols. 15-16, and compound I-25 at col. 11.

Maeda does not disclose that the phthalocyanine and bisazo pigments in example 5 have spectral sensitivity in different wavelength regions. However, Maeda discloses that the oxytitanium phthalocyanine has sensitivity in the longer wavelength region. Col. 1, lines 36-41. Ikegami discloses that Maeda's bisazo pigment in example 5 has a sensitivity to the visible region. Ikegami, col. 6, lines 20-25, formula (I) at col. 3, and coupler No. 1 in Table 1.

8. Claims 10, 11, 18, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda combined with Schaffert, Electrophotography, pages 35, 50-51.

Maeda discloses a photoreceptor as described in paragraph 7 above, which is incorporated herein by reference.

Maeda also discloses an electrophotographic apparatus and a process cartridge comprising Maeda's photoreceptor. The apparatus further comprises a contact charging device, a light irradiation device, a developing device, an image transfer

device, and a cleaning device. Fig. 1, col. 12, line 58, to col. 13, line 29. The process cartridge can further comprise at least one of the following: a contact charging device, a developing device, and a cleaning device. Figs. 2 and 3, col. 13, lines 29-63.

Maeda does not disclose that the developing device reversely develops the electrostatic latent image with a toner to form a toner image on the photoreceptor. However, it is well-known in the art that photocopying often requires the production of positive prints from photographic negatives. Schaffert, page 50, lines 4-5. Schaffert discloses that this can be accomplished by changing the development material, which is suitable for line copy work, or by using a development electrode, which is suitable for handling continuous-tone subjects. Schaffert, page 50, lines 5-9, and sections 2.6.1 and 2.6.2. In both cases, a xerographic plate requiring positive sensitization can be developed with an electropositive developer, and a plate requiring negative sensitization can be developed with an electronegative developer.

It would have been obvious for a person having ordinary skill in the art to use a developer device as taught by Schaffert which can reversely develop the electrostatic latent image with a toner to form a toner image on the photoreceptor in the electrophotographic apparatus and process cartridge disclosed by

Maeda, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic imaging apparatus and process cartridge that are capable of providing the production of positive prints from photographic negatives.

9. Claims 1, 8-11, 18-20, 27-29, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over United Kingdom Patent 2,336,441 (GB'441), as evidenced by Ikegami, combined with Japanese Patent 07-295250 (JP'250), as evidenced by the Japanese Patent Office (JPO) machine translation of JP'250.

GB'441 discloses an electrophotographic photoreceptor that meets the limitations recited in the instant claims, but for the organic sulfur-containing compound recited in the instant claims. The photoreceptor comprises a conductive substrate, a charge generation layer, and a charge transport layer. The charge generation layer comprises a triazo pigment and a bisazo pigment. See example I-1 at pages 48-52.

GB'441 does not disclose that the triazo and bisazo pigments in example I-1 have spectral sensitivity in different wavelength regions. However, Ikegami discloses that GB'441's triazo pigment has a sensitivity to light with a wavelength of 700 nm or more, and GB'441's bisazo pigment has a sensitivity to

the visible region. Ikegami, col. 6, lines 20-25, compound (11) at cols. 33-34, compound (13-a) at cols. 35-36.

GB'441 discloses that its photoreceptor can be used in an electrophotographic image forming apparatus and in an electrophotographic process cartridge, both of which meet the other components recited in instant claims 10, 11, and 20. Page 10, line 11, to page 11, line 9, page 13, line 10, to page 17, line 22, and Figs. 1-3. GB'441 further discloses that its photoreceptor can be used in a reversal development image forming method that meets the steps recited in instant claim 29. Page 13, line 10, to page 16, line 8, and page 24, lines 3-16.

As discussed supra, GB'441 does not exemplify a charge transport layer comprising a sulfur-containing compound as recited in the instant claims. However, GB'441 teaches that a sulfur-containing antioxidant or a hindered phenol can be added to the charge transport layer. Page 45, line 7, and page 45, line 17, to page 46, line 2.

JP'250 discloses a sulfur-containing compound that meets the limitation of formula (III) recited in the instant claims. JP'250 discloses that said sulfur-containing compound can be used as an antioxidant in charge transport layers of photoreceptors. Translation, paragraph 0007, compounds (I-1) to (I-4) at paragraph 0026. JP'250 discloses that said sulfur-containing compounds prevent the deterioration of the photoreceptor due to

ozone in the ambient air or due to strong light irradiation. The photoreceptor has improved potential stability over long periods of time. Translation, paragraphs 0003, 0006-0007, and paragraph 0054, lines 1-4.

It would have been obvious for a person having ordinary skill in the art to use JP'250's sulfur-containing compound that meets the limitation of formula (III) recited in the instant claims, as the antioxidant in the charge transport layer in the photoreceptor disclosed by GB'441, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor that has improved potential stability over long periods of time, thereby providing an electrophotographic imaging apparatus, process cartridge, and imaging method that provide stable toner images after many repeated copies.

10. Claims 1, 8-10, 18, 19, 29, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,190,839 (Fujimaki) combined with JP'250, as evidenced by the JPO machine translation of JP'250.

Fujimaki discloses an electrophotographic photoreceptor that meets the limitations recited in the instant claims, but for the organic sulfur-containing compound recited in the instant claims. The photoreceptor comprises a conductive substrate, a charge generation layer, and a charge transport layer. The charge

generation layer comprises a titanylphthalocyanine (TiOPc) having a specific crystalline characteristic and a polycyclic quinone pigment. See example 9 at cols. 27 and 28. The titanylphthalocyanine has a major absorption peak in "the longer wavelength region." Col. 4, lines 19-23, and Fig. 2. The polycyclic quinone pigment has a higher sensitivity to wavelengths of 450 to 600 nm, which makes up for the TiOPc's poor sensitivity to shorter wavelengths. Col. 10, lines 29-32. Fujimaki discloses that his photoreceptor has improved repeatability and a higher sensitivity over a broad wavelength region from the visible to near-infrared range. Col. 2, lines 20-42. The photoreceptor can be used in devices capable of printing and duplicating, in which duplication is performed using white light. The photoreceptor can also be employed effectively in high-speed duplicating processes. Col. 2, lines 43-46.

Fujimaki discloses that its photoreceptor can be used in an electrophotographic image forming apparatus that meets the other components recited in instant claim 10. Col. 21, line 59, to col. 22, line 14. Fujimaki further discloses that its photoreceptor can be used in a reversal development image forming method that meets the steps recited in instant claim 29. Col. 21, line 59, to col. 22, line 14.

As discussed supra, Fujimaki does not exemplify a charge transport layer comprises a sulfur-containing compound as recited

in the instant claims. However, Fujimaki teaches that an organic sulfur-containing antioxidant can be added to the charge transport layer to prevent oxidation by ozone generated by corona discharge. Col. 19, lines 46-48, 51-52.

JP'250 discloses a sulfur-containing compound that meets the limitations of formula (III) recited in the instant claims. JP'250 discloses that said sulfur-containing compound can be used as an antioxidant in charge transport layers of photoreceptors. The discussion of JP'250 in paragraph 9, supra, is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use JP'250's sulfur-containing compound that meets the limitation of formula (III) recited in the instant claims, as the antioxidant in the charge transport layer in the photoreceptor disclosed by Fujimaki, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor that has improved potential stability over long periods of time, thereby providing an electrophotographic imaging apparatus and imaging method that provide stable toner images after many repeated copies.

11. Claims 10, 11, 18-20, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki combined with JP'250, as evidenced by the JPO machine translation of JP'250,

as applied to claims 10, 18, and 19 above, further combined with US 5,047,803 (Kanoto).

Fujimaki combined with JP'250 renders obvious an electrophotographic photoreceptor and electrophotographic imaging apparatus as described in paragraph 10 above, which is incorporated herein by reference.

Fujimaki does not disclose that his electrophotographic photoreceptor can be used in a process cartridge as recited in the instant claims. However, the use of process cartridges in electrophotographic apparatuses are well-known in the art. Kanoto discloses that process cartridges comprising an electrophotographic photoreceptor and at least one processing means, such as a contact roller charger or corona charger, a developing device, a cleaner and other elements, are widely used in the field of image forming apparatuses that are small and that do not require maintenance. Col. 1, lines 18-28, col. 3, lines 36-38. Kanoto discloses an imaging forming apparatus comprising a process cartridge that is easily dismounted from the main assembly of the image forming apparatus. Col. 1, lines 60-63. Kanoto further discloses that the process cartridge or image forming apparatus can comprise a developing device which reversely develops the electrostatic latent image with a developer having the same polarity as the charge remaining on the photoreceptor. Col. 3, lines 57-61.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kanoto, to incorporate the electrophotographic photoreceptor rendered obvious over the combined teachings of Fujimaki and JP'250 in Kanoto's detachable process cartridge in his image forming apparatus, because that person would have had reasonable expectation of successfully obtaining an image forming apparatus comprising an easily detachable process cartridge having the benefits of being small and free from maintenance, and having the benefits disclosed by Fujimaki and JP'250.

12. Claims 1-5, 8-15, 18, 19, 29-33, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 09-127711 (JP'711), as evidenced by the JPO machine translation of JP'711, combined with JP'250, as evidenced by the JPO machine translation of JP'250.

JP'711 discloses an electrophotographic photoreceptor comprising a conductive substrate, a charge generation layer, and a charge transport layer. The charge generation layer comprises an oxy-titanium phthalocyanine pigment and an asymmetric bisazo pigment that meets the limitations of formula (II) recited in instant claim 4. Translation, photoconductor B, paragraphs 0031-0033, 0035-0038. The weight ratio of phthalocyanine pigment to bisazo pigment is 2:1, which meets the ratio recited in instant

claim 3. (The weight ratio is determined from 10 parts by weight of the phthalocyanine pigment to 5 parts by weight of the bisazo pigment. Translation, paragraph 0033.) JP'711 further discloses that the phthalocyanine pigment can be preferably a X-form metal-free phthalocyanine or a τ -form metal-free phthalocyanine pigment, which meet the limitation recited in instant claim 5. Translation, paragraph 0015. JP'711 discloses that its photoreceptor comprising a X-form or τ -form metal-free phthalocyanine pigment and a bisazo pigment has photographic sensitivity to long wavelength light, and can be fully charged from the "first rotation." Translation, paragraph 0011.

JP'711 further discloses that its photoreceptor can be used in an electrophotographic image forming apparatus that meets the other components recited in instant claims 10 and 11. Translation, paragraphs 0029 and 0043. JP'711 also discloses that its photoreceptor can be used in a reversal development image forming method that meets the steps recited in instant claim 29. Translation, paragraphs 0029 and 0043.

JP'711 does not disclose that the charge transport layer comprises a sulfur-containing compound as recited in the instant claims. However, JP'711 discloses that the charge transport layer can comprise any well-known antioxidant. Translation, paragraph 0027.

JP'250 discloses a sulfur-containing compound that meets the limitations of formula (III) recited in the instant claims. JP'250 discloses that said sulfur-containing compound can be used as antioxidant in charge transport layers of photoreceptors. The discussion of JP'250 in paragraph 9, supra, is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use JP'250's sulfur-containing compound that meets the limitation of formula (III) recited in the instant claims, as the antioxidant in the charge transport layer in the photoreceptor disclosed by JP'711, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor that has improved potential stability over long periods of time, thereby providing an electrophotographic imaging apparatus and imaging method that provide stable toner images after many repeated copies.

13. Claims 20-24, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'711, as evidenced by the JPO machine translation of JP'711, combined with JP'250, as evidenced by the JPO machine translation of JP'250, as applied to claims 1-5, 8-15, 18, and 19 above, further combined with Kanoto.

JP'711 combined with JP'250 renders obvious an electrophotographic photoreceptor and an electrophotographic

imaging apparatus as described in paragraph 12 above, which is incorporated herein by reference.

JP'711 does not disclose that the electrophotographic photoreceptor can be used in a process cartridge as recited in the instant claims. However, the use of process cartridges in electrophotographic apparatuses are well-known in the art. Kanoto discloses an imaging forming apparatus comprising a process cartridge that is easily dismounted from the main assembly of the image forming apparatus. The discussion of Kanoto in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kanoto, to incorporate the electrophotographic photoreceptor rendered obvious over the combined teachings of JP'711 and JP'250 in Kanoto's detachable process cartridge in his image forming apparatus, because that person would have had reasonable expectation of successfully obtaining an image forming apparatus comprising an easily detachable process cartridge having the benefits of being small and free from maintenance, and having the benefits disclosed by JP'711 and JP'250.

14. Claims 6, 16, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'711, as evidenced by the JPO machine translation of JP'711, combined with JP'250, as evidenced by the

JPO machine translation of JP'250, as applied to claims 5, 15, and 33 above, further combined with US 4,507,374 (Kakuta) and DERWENT abstract Acc. No. 1983-816039.

JP'711 combined with JP'250 renders obvious a photoreceptor, an electrophotographic imaging apparatus, and a reversal developing imaging method as described in paragraph 12 above, which is incorporated herein by reference.

As set forth in paragraph 12, JP'711 discloses that the phthalocyanine pigment can be preferably a τ -form metal-free phthalocyanine. Translation, paragraph 0015. JP'711 discloses that its photoreceptor comprising a τ -form metal-free phthalocyanine pigment and a bisazo pigment has photographic sensitivity to long wavelength light, and can be fully charged from the "first rotation." Translation, paragraph 0011. JP'711 does not disclose that the τ -form metal-free phthalocyanine pigment has the X-ray diffraction pattern recited in the instant claims.

However, Kakuta discloses a τ -form metal-free phthalocyanine pigment having a X-ray diffraction pattern with characteristic Bragg angles ($2\theta \pm 0.2^\circ$) of 7.6, 9.2, 16.8, 17.4, 20.4, and 20.9. Col. 2, lines 16-19, col. 4, lines 38-42, 53-55, and Fig. 4. Kakuta discloses that photoreceptors comprising said phthalocyanine exhibits high sensitivities to longer wavelength light. Col. 1, lines 58-63. Kakuta discloses that said

phthalocyanine exhibits a maximum sensitivity at 790-810 nm, and is most useful in photoconductors image-wise exposed to a semiconductor laser. Col. 9, lines 38-41.

Kakuta does not disclose that the X-ray diffraction pattern of his τ -form metal-free phthalocyanine exhibits Bragg angles of 21.7° and 27.6° as recited in the instant claims. However, the instant specification discloses that the τ -form metal-free phthalocyanine having the X-ray diffraction pattern recited in the instant claims can be prepared by a method described in Japanese Patent 58-182639 (JP'639). Specification, page 21, lines 11-19. Kakuta is the US equivalent of JP'639. See the DERWENT abstract Acc. No. 1983-816039. Because Kakuta's τ -form metal-free phthalocyanine has an X-ray diffraction pattern that exhibits Bragg angles of 7.6° , 9.2° , 16.8° , 17.4° , 20.4° , and 20.9° , which meets six out of the eight Bragg angles recited in the instant claims, and is obtained by a method that makes a τ -form metal-free phthalocyanine having the X-ray diffraction pattern recited in the instant claims, it is reasonable to presume that Kakuta's τ -form metal-free phthalocyanine has a X-ray diffraction pattern that meets the limitation recited in the instant claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

It would have been obvious for a person having ordinary skill in the art to use Kakuta's τ -form metal-free phthalocyanine

pigment as the metal-free phthalocyanine in the photoreceptor rendered obvious over the combined teachings of JP'711 and JP'250, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer wavelength region, thereby providing an electrophotographic imaging apparatus and a reversal development imaging method that provide good toner images as taught by JP'711 and JP'250.

15. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'711, as evidenced by the JPO machine translation of JP'711, combined with JP'250, as evidenced by the JPO machine translation of JP'250, and Kanoto, as applied to claim 24 above, further combined with Kakuta and DERWENT abstract Acc. No. 1983-816039.

JP'711 combined with JP'250 and Kanoto renders obvious a process cartridge as described in paragraph 13 above, which is incorporated herein by reference.

JP'711 discloses that the phthalocyanine pigment can be preferably a τ -form metal-free phthalocyanine. JP'711 does not disclose that the τ -form metal-free phthalocyanine pigment has the X-ray diffraction pattern recited in the instant claims. However, Kakuta discloses a τ -form metal-free phthalocyanine pigment that appears to have a X-ray diffraction pattern that

meets the limitations recited in the instant claims. The discussions of JP'711 and Kakuta in paragraph 14, supra, are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use Kakuta's r-form metal-free phthalocyanine pigment as the metal-free phthalocyanine in the photoreceptor rendered obvious over the combined teachings of JP'711 and JP'250, and to use said photoreceptor in the apparatus disclosed by Kanoto, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer wavelength region, thereby providing an electrophotographic imaging apparatus comprising an easily detachable process cartridge that provide good toner images as taught by JP'711 and JP'250.

16. Claims 7, 17, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'711, as evidenced by the JPO machine translation of JP'711, combined with JP'250, as evidenced by the JPO machine translation of JP'250, as applied to claims 5, 15, and 33 above, further combined with US 3,357,989 (Byrne).

JP'711 combined with JP'250 renders obvious a photoreceptor, an electrophotographic imaging apparatus and a reversal developing imaging method as described in paragraph 12 above, which is incorporated herein by reference.

As set forth in paragraph 12, supra, JP'711 discloses that the phthalocyanine pigment can be preferably a X-form metal-free phthalocyanine. Translation, paragraph 0015. JP'711 discloses that its photoreceptor comprising a X-form metal-free phthalocyanine pigment and a bisazo pigment has photographic sensitivity to long wavelength light, and can be fully charged from the "first rotation." Translation, paragraph 0011. JP'711 discloses that a X-form metal-free phthalocyanine has especially high photographic sensitivity. Translation, paragraph 0015. JP'711 does not disclose that the X-form metal-free phthalocyanine pigment has the X-ray diffraction pattern recited in the instant claims.

However, a X-form metal-free phthalocyanine pigment having a X-ray diffraction pattern recited in the instant claims is well-known in the art, as shown by Byrne. Byrne discloses a X-form metal-free phthalocyanine pigment having a X-ray diffraction pattern that meets the limitations recited in the instant claims. See Fig. 1, and col. 2, lines 50-54, col. 5, lines 14-22, and reference claim 1. Byrne's phthalocyanine has photosensitivity to the wavelength region of greater than 700 nm. See Fig. 2. Byrne discloses that his phthalocyanine is especially useful as a photoconductive material in electrophotography, and that provides surprisingly high photosensitivity. Col. 2, lines 3-9.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Byrne, to use a well-known X-form metal-free phthalocyanine pigment having a X-ray diffraction pattern that meets the limitation of the instant claims as the metal-free phthalocyanine in the photoreceptor rendered obvious over the combined teachings of JP'711 and JP'250, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer wavelength region, thereby providing an electrophotographic imaging apparatus and a reversal development imaging method that provide good toner images as taught by JP'711 and JP'250.

17. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'711, as evidenced by the JPO machine translation of JP'711, combined with JP'250, as evidenced by the JPO machine translation of JP'250, and Kanoto, as applied to claim 24 above, further combined with Byrne.

JP'711 combined with JP'250 and Kanoto renders obvious a process cartridge as described in paragraph 13 above, which is incorporated herein by reference.

JP'711 does not disclose that the X-form metal-free phthalocyanine pigment has the X-ray diffraction pattern recited in the instant claims. However, a X-form metal-free

phthalocyanine pigment having a X-ray diffraction pattern recited in the instant claims is well-known in the art, as shown by Byrne. The discussions of JP'711 and Byrne in paragraph 16, supra, are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Byrne, to use a well-known X-form metal-free phthalocyanine pigment having a X-ray diffraction pattern that meets the limitation of the instant claims as the metal-free phthalocyanine in the photoreceptor rendered obvious over the combined disclosures JP'711 and JP'250, and to use said photoreceptor in the apparatus disclosed by Kanoto, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer wavelength region, thereby providing an electrophotographic imaging apparatus comprising an easily detachable process cartridge that provides good toner images as taught by JP'711 and JP'250.

18. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

19. Claims 1-5, 8-10, 12-15, 18, 19, 29-33, 36, and 37 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. 6,136,483 (Suzuki) in view of JP'250, as evidenced by the JPO machine translation of JP'250.

Suzuki claims an electrophotographic photoreceptor that meets the limitations recited in the instant claims, but for the organic sulfur-containing compound recited in the instant claims. The photoreceptor comprises a conductive substrate, a charge generation layer, and a charge transport layer. The charge generation layer comprises an asymmetric bisazo pigment that meets the limitations of formula (I) recited in instant claim 2 and either a π -type metal-free phthalocyanine pigment or a X-form metal-free phthalocyanine that meets the limitation recited in instant claim 5. See reference claims 1 and 5. The weight ratio of phthalocyanine pigment to bisazo pigment is 1:5 to 5:1, which meets the ratio recited in instant claim 3. See reference claim 1. Suzuki further claims that the asymmetric bisazo

pigment can be that represented by formula (II) in reference claim 4, which meets the limitation recited in instant claim 4.

Suzuki further claims an electrophotographic image forming apparatus comprising the photoreceptor that meets the other components recited in instant claim 10. See reference claim 9. Suzuki also discloses a reversal development image forming method using said photoreceptor that meets the steps recited in instant claim 29. See reference claim 8.

As discussed supra, the reference claims do not recite that the charge transport layer comprises a sulfur-containing compound as recited in the instant claims.

JP'250 discloses a sulfur-containing compound that meets the limitation of formula (III) recited in the instant claims. JP'250 discloses that said sulfur-containing compound can be used as an antioxidant in charge transport layers of photoreceptors. The discussion of JP'250 in paragraph 9, supra, is incorporated herein by reference.

It would have been obvious to a person having ordinary skill in the art to use JP'250's sulfur-containing compound that meets the limitation of formula (III) recited in the instant claims as the antioxidant in the charge transport layer in the photoreceptor recited in Suzuki's claims, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor that has improved potential stability over long

periods of time, thereby providing an electrophotographic imaging apparatus and imaging method that provide stable toner images after many repeated copies.

20. Claims 6, 16, and 34 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of Suzuki in view of JP'250, as evidenced by the JPO machine translation of JP'250, further in view of Kakuta and DERWENT abstract Acc. No. 1983-816039.

The subject matter recited in the claims of Suzuki in view of the teachings of JP'250 renders obvious a photoreceptor, an electrophotographic imaging apparatus, and a reversal developing imaging method as described in paragraph 19 above, which is incorporated herein by reference.

The Suzuki claims do not recite that the τ -form metal-free phthalocyanine recited in the reference claims has the X-ray diffraction pattern recited in the instant claims. However, Kakuta discloses a τ -form metal-free phthalocyanine that appears to have a X-ray diffraction pattern as recited in the instant claims. The discussion of Kakuta in paragraph 14, supra, is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use Kakuta's τ -form metal-free phthalocyanine pigment as the metal-free phthalocyanine in the photoreceptor

rendered obvious over the subject matter recited in Suzuki combined with teachings of JP'250, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer wavelength region, thereby providing an electrophotographic imaging apparatus and a reversal development imaging method that are capable of providing toner images using a longer wavelength image-wise exposure source.

21. Claims 7, 17, and 35 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of Suzuki in view of JP'250, as evidenced by the JPO machine translation of JP'250, further in view of Byrne.

The subject matter recited in the claims of Suzuki in view of the teachings of JP'250 renders obvious a photoreceptor, an electrophotographic imaging apparatus, and a reversal developing imaging method as described in paragraph 19 above, which is incorporated herein by reference.

The Suzuki claims do not recite that the X-form metal-free phthalocyanine recited in the reference claims has the X-ray diffraction pattern recited in the instant claims. However, a X-form metal-free phthalocyanine pigment having a X-ray diffraction pattern recited in the instant claims is well-known in the art,

as shown by Byrne. The discussion of Byrne in paragraph 16 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Byrne, to use a well-known X-form metal-free phthalocyanine pigment having a X-ray diffraction pattern that meets the limitation of the instant claims as the metal-free phthalocyanine in the photoreceptor rendered obvious over the subject matter recited in Suzuki combined with teachings of JP'250, because that person would have had a reasonable expectation of successfully obtaining a photoreceptor having improved sensitivity to the longer wavelength region, thereby providing an electrophotographic imaging apparatus and a reversal development imaging method that are capable of providing toner images using a longer wavelength image-wise exposure source.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Nam Nguyen, can be reached on (703) 308-3322. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599 for after final faxes, and (703) 305-7718 for other official faxes.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Application/Control Number: 09/679,480
Art Unit: 1753

Page 29

JLD
June 24, 2001

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP ~~1500~~
1700